REMARKS

Claims 1, 3-15, 17-24, 26-43 and 45-69 are pending in this application, with claims 1, 8, 10, 14, 15, 21, 24, 31, 36, 45, 47, 49, 58, 63 and 67 being independent. Claims 1, 3, 4, 7, 8, 10, 14, 15, 17, 18, 21, 24, 26, 27, 30, 31, 36, 45, 49, 51, 59 and 64 have been amended and claims 2, 16, 25 and 44 have been cancelled. Favorable reconsideration and allowance are respectfully requested.

Applicant notes with appreciation the indication that claims 8, 10, 21 and 31 would be allowable if rewritten in independent form. Those claims have been so-rewritten, and their allowance is respectfully requested.

The Office Action requires a new oath or declaration, in compliance with 37 C.F.R. § 1.67(a). A new declaration, identifying this application by its serial number, is submitted herewith.

The Office Action objects to claims 2, 45, 49, 51, 59 and 64 because of various minor informalities. Each of those claims (except claim 2, which has been cancelled) has been amended to correct its informality and removal of the objections are respectfully requested.

The Office Action rejects claims 1, 2, 14-16, 24, 25, 36, 37 and 44-48 under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 6,711,137 (Klassen); and claims 3-7, 9, 11-13, 17-20, 22, 23, 26-30, 32-44 and 49-69 under 35 U.S.C. § 103(a) as obvious from Klassen in view of U.S. Patent No. 6,502,131 (Vaid). These rejections are respectfully traversed.

As recited in independent claim 1, the present invention relates to a method for determining an amount of bandwidth available in a communication path that couples plural nodes. The method includes three steps: exercising a smaller portion of the path, that includes a first node, using first information signals, to determine propagation delay present in the first node; exercising a larger portion of the path that includes the first node and a second node, using second information signals, to determine the amount of time it takes for the second signals to traverse the second portion of the path; and determining the amount of bandwidth available based upon the determined amount of time and the determined amount of propagation delay.

Independent claim 14 relates to an apparatus for determining the amount of bandwidth in a path, having means corresponding to the steps of claim 1. Independent claim 15 also relates to an apparatus for determining the amount bandwidth, having a controller that performs operations that correspond generally to the steps of claim 1. Independent claim 24 relates to a computer program product, having code that executes steps corresponding generally to the claim 1 steps. Independent claim 36 relates to a communication system, that includes a test node for performing steps along those lines. And independent claims 45 and 47 relate to a method and apparatus, respectively, and also include the features of claim 1 discussed above.

Internet service providers typically promise customers a specific bandwidth. Due to traffic conditions, however, the amount of bandwidth that they can actually make available can at a given time fluctuate, and when the promised bandwidth cannot be delivered, customer complaints generally result. Thus, test procedures for determining bandwidths are very useful.

Conventional tests operate by terminating existing virtual circuits and rebuilding others to couple the customer's equipment to test servers. Such technologies, however, have multiple drawbacks. One is that because the rebuilt circuit is not the same as the original, the determined bandwidth may be an inaccurate estimation of the actual bandwidth being provided. Also, the test procedure does not provide an indication of the uplink bandwidth or of the system components that may be causing the problem. Other drawbacks exist as well.

The invention of the foregoing claims overcomes those drawbacks by providing a technique for determining bandwidth, in which two exercising steps take place: one of a first, smaller portion of the path, to determine an amount a signal propagation delay in a first node, and one of a second, larger portion of the path (that includes the first node), to determine the amount of time it takes information to traverse that second path. Then, the amount of available bandwidth is determined based on the amount of time and the propagation delay. This novel and inventive technique is neither taught nor suggested by the prior art.

Klassen relates to a system and method for analyzing and tuning a communications network. Fig. 6 of Klassen depicts, in very general terms, five different bandwidth tests: a ping test 40; an FTP (file transfer protocol) test 42; a multi-FTP test 44; a streamed ping test 46; and a multi-streamed ping test 48. Klassen goes on to describe how those tests might be used in conjunction with one another such as for example:

- Use of the ping test to indicate single user end-to-end transaction response time;

- Dividing streamed pings throughput bandwidth by FTP throughput bandwidth to derive the network's relative capability to handle duplex traffic;
- Dividing FTP throughput bandwidth by discrete ping throughput bandwidth to derive network hop count; and
- Dividing streamed ping throughput by discrete ping throughput to derive the total capacity of the network.

However, there is absolutely nothing in Klassen that teaches or suggests the technique of claims 1, 14, 15, 24, 36, 45 and 46. Specifically, there is nothing to teach or suggest exercising a smaller portion of a path to determine the propagation delay of a node, exercising a larger portion of the path to determine a traverse time and determine the bandwidth in that path from the determined traverse time, and determined propagation delay. Absent those salient features, Applicant respectfully submits that Klassen cannot possibly anticipate the foregoing claims.

In independent claim 47, there is a determination of bandwidth based on a determined amount of signal propagation delay and a determined amount of time. And in independent claims 49, 58, 63 and 67, there is a determination of bandwidth based upon a determined amount of time and a determined amount of information. As is apparent from the discussion of Klassen above, these features are not taught nor suggested by it, and Klassen therefore cannot anticipate or render obvious those claims.

Vaid relates to methods for monitoring quality of service parameters within information sources in a computer network, and is cited by the Office Action for teaching features of the claims other than those discussed above. The Office Action does not contend that Vaid teaches the features of the claims missing from Klassen that are

noted above, and plainly it does not. Vaid, therefore, cannot correct the deficiencies of Klassen.

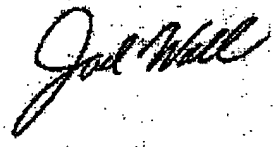
The remaining claims all depend from one of the independent claims discussed above, and each partakes in the novelty and non-obviousness of its respective base claim. In addition, each recites additional patentable features of the present invention, and individual reconsideration and allowance of each are respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and passage to issue of the present application.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 07-2347. If an extension of time under 37 C.F.R. § 1.136 not accounted for above is required, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,



Joel Wall
Reg. No. 25,648

Date: December 15, 2004

c/o Christian R. Andersen
VERIZON CORPORATE SERVICES GROUP, INC.
HQE03H14
600 Hidden Ridge Drive
Irving, TX 75038
(972) 718-4800